



SEQUENCE LISTING

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12 DEC 2001

09/857346

<110> Commonwealth Scientific and Industrial Research Organization

<120> Control of Flowering

<130> FP14526

<140> US 09/857,346

<141> 2001-06-04

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Technology Center 2600

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<151> 1999-12-02

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gctttccgtt ctctgtgacg catccgtcgc tcttcttgtc gtctccgcct ccgggaaact	240
ctacagcttc tcctccggtg ataacctggt caagatcctt gatcgatatg gaaagcaaca	300
tgatgatgat cttaaagcct tggatcgtca gtcaaaagct ttggactgtg gttcacacca	360
tgagctactg gaacttgtgg aaagcaagct tgaggaatca aatgtcgata atgtaagtgt	420
gggttccttg gttcagctgg aggaacacct tgagaacgcc ctctccgtaa caagagctag	480
gaagacagaa ctaatgttga agcttgtcga gaaccttaaa gaaaaggaga agttgctgga	540

agaggagaac catgttttgg ctagccagat ggagaagagt aatcttgtgc gagccgaagc 600  
 tgataatatg gatgtctcac caggacaaat ctccgacatc aatcttccgg taacgctccc 660  
 actgcttaat tagtcacctt taatcggcga ataaataaaa tccaaaacat ataactaaaa 720  
 caaacaagat gtgtaattat ccccttgtaa aggggtgtacg ttgtataatc tatactctct 780  
 ctccggctcg agaggcttcg ggtgtaaaac tatttcagat ttatgtaaga tagaaaatct 840  
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<210> 10

<211> 792

<212> DNA

<213> Brassica napus

<220>

<221> Unsure

<222> (619)..(619)

<223> Unknown

<400> 10

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 tcgtcagctt tcagttctct gcgatgcac cgtcgctctt ctcgttgtct cagcctccgg 180  
 caagctttac aacttctccg ccggcgataa cctggtcaag atccttgatc gatatggaaa 240  
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 acaccatgag ctactagagc ttgtcgaaag taagcttgtg gaatcaaatt ctgatgtaag 360  
 cgtcgactcc ctcgttcagc tggaggacca ccttgagact gccctctccg taactagagc 420  
 taggaagaca gaactaatgt tgaagcttgt tgatagcctc aaagaaaagg agaaattgct 480  
 gaaagaagag aaccaggggt tggctagcca gatggagaag aataatcttg cgggagccga 540  
 agctgataaa atggagatgt cacctggaca aatctctgac atcaatcgtc cggttaactct 600  
 ccgactgctt tattagccnc cttaagtcca aaacttgtga ctaaaaacaa aaataagtta 660

tcgaactatt cccctataag ggtgaacggt gtatatcttc attctctctg gctgagagac 720  
cccgtgtgta aaactatggt tagatttaag taaaaatata tatttaagac atactaaaaa 780  
aaaaaaaaaa aa 792

<210> 11

<211> 990

<212> DNA

<213> Brassica napus

<400> 11

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aaagctcgtc agctttctgt tctctcgcat gcatccgtcg cgttctctgt tgtctcctcc 180  
tccggcaagc tctacagctt ctccgccggt gataacctgg tcaggatcct tgatcgatat 240  
ggaaaacagc atgctgatga tcttaaagcc ctgaatcttc agtcaaaagc tctgagctat 300  
ggttcacaca atgagttact tgaacttgtg gatagcaagc ttgtggaatc aaatgtcggg 360  
ggtgtaagcg tggacaccct cgttcagctg gaggggtgtc ttgaaaatgc cctctctcta 420  
actagagcta ggaagacaga actaatgttg aagcttgttg atagcctcaa agaaaaggag 480  
aagctgctga aagaagagaa tcaggctttg gctggccaga aggagaagaa gaatcttgcg 540  
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gtaactctcc cactgcttaa ttagccaccg ttagacgggg ctgatcaaat taaaaaatcc 660  
aaaacataca actaaataaa taagctttgt tgtttttcac ccttgaaggg tgcacgttgt 720  
atatctcaat actcccttgg ctgagagatt gtgtgtttac tcctatgtta gatataatga 780  
gtaaaataaa aataaaaaga tctttgtacc ttcgtcgaga gagaattgta gtgagtgtgc 840  
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cggagacgtg gccctctctg cccttttgta ttcgtaattc ctttgtattt atccacaacg 960  
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<210> 12

<211> 780

<212> DNA

<213> Brassica napus

<220>

<221> Unsure

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<223> Unknown

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<223> Unknown

<220>

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<222> (779) .. (779)

<223> Unknown

<400> 12

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gagaaagctc gtcagctttc agttctctgc gatgcatccg tcgctcttct cgttgtctca	180
gcctccggca agctttacaa cttctccgcc ggcgataacc tggtaagat ccttgatcga	240
tatggaaaac aacatgctga tgatcttaaa gctctggatc ttcagtcaaa agctccgaag	300
tatggttcac accatgagct actagagctt gtcgaaagta agcttgtgga atcaaattct	360
gatgtaagcg tcgactccct cggtcagctg gaggaccacc ttgagactgc cctctccgta	420
actagagcta ggaagacaga actaatgttg aagcttgttg atagcctcaa agaaaaggag	480
aaattgctga aagaagagaa ccagggtttg gctagccaga tggagaagaa taatcttgcg	540
ggagccgaag ctgataaaat ggagatgtca cctggacaaa tctctgacat caatcgtcg	600

gtaactctcc gactgcttta ttagccacct taagtccaaa acttgtgact aaaaacaaaa 660  
 ataagttatc gaactattcc cctataaggg tgaacgttgt atatcttcat tctctctggc 720  
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<210> 13

<211> 845

<212> DNA

<213> Brassica napus

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 agttaccttc tctaaacgac gcaacggtct catcgagaaa gctcgtcagc tttccgttct 180  
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 ctccggtgat aacctgggtca agatccttga tcgatatgga aagcaacatg atgatgatct 300  
 taaagccttg gatcgtcagt caaaagcttt ggactgtggt tcacaccatg agctactgga 360  
 acttgtggaa agcaagcttg aggaatcaaa tgtcgataat gtaagtgtgg gttccctggt 420  
 tcagctggag gaacaccttg agaacgcct ctccgtaaca agagctagga agacagaact 480  
 aatgttgaag cttgtcgaga accttaaaga aaaggagaag ttgctggaag aggagAACCA 540  
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 gtcaccttta atcggcgaat aaataaaatc caaaacatat aactaaaaca aacaagatgt 720  
 gtaattatcc ccttgtaaag ggtgtacgtt gtataatcta tactctctct ccggctcgag 780  
 aggcttcggg tgtaaaacta tttcagattt atgtaagata gaaaatctat gcaagacact 840  
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<210> 14

<211> 825

<212> DNA

<213> Brassica napus



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 gtcaccttct ccaaacgacg caatgggtctc atcgagaaag ctcgtcagct ttcagttctc 180  
 tgcgatgcat ccgtcgctct tctcgttgtc tcagcctccg gcaagcttta caacttctcc 240  
 gccggcgata acctgggtcaa gatccttgat cgatatggaa aacaacatgc tgatgatctt 300  
 aaagctctgg atcttcagtc aaaagctccg aagtatgggt cacaccatga gctactagag 360  
 cttgtcgaaa gtaagcttgt ggaatcaaat tctgatgtaa gcgtcgactc cctcgttcag 420  
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 ttgaagcttg ttgatagcct caaagaaaag gagaaattgc tgaaagaaga gaaccagggg 540  
 ttggctagcc agatggagaa gaataatctt gcgggagccg aagctgataa aatggagatg 600  
 tcacctggac aaatctctga catcaatcgt ccggttaactc tccgactgct ttattagcca 660  
 ccttaagtcc aaaacttgtg actaaaaaca aaaataagtt atcgaactat tcccctataa 720  
 ggggtgaacgt tgtatatctt cattctctct ggctgagaga ccccggtgtgt aaaactatgg 780  
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<210> 15

<211> 891

<212> DNA

<213> Brassica napus

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 gttaccttct ctaaacgacg caacgggtctc atcgagaaag ctcgtcagct ttccgttctc 180  
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 tccggtgata acctgggtcaa gatccttgat cgatatggaa agcaacatga tgatgatctt 300  
 aaagccttgg atcgtcagtc aaaagctttg gactgtgggt cacaccatga gctactggaa 360  
 cttgtggaaa gcaagcttga ggaatcaaat gtcgataatg taagtgtggg ttccctgggt 420

cagctggagg aacaccttga gaacgcctc tccgtaacaa gagctaggaa gacagaacta 480  
atgttgaagc ttgtcgagaa ccttaaagaa aaggagaagt tgctggaaga ggagaaccat 540  
gttttggtta gccagatgga gaagagtaat cttgtgagag ccgaagctga taatatggat 600  
gtctcaccag gacaaatctc cgacatcaat cttccggtaa cgctcccact gcttaattag 660  
tcacctttaa tcggcggaata aataaaatcc aaaacatata actaaaacaa acaagatgtg 720  
taattatccc cttgtaaagg gtgtacgttg tataatctat actctctctc cggctcgaga 780  
ggcttcgggt gtaaaactat ttcagattta tgtaagatag aaaatctatg caagacactt 840  
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<210> 16

<211> 196

<212> PRT

<213> Brassica napus

<400> 16

Met	Gly	Arg	Lys	Lys	Leu	Glu	Ile	Lys	Arg	Ile	Glu	Asn	Lys	Ser	Ser	1	5	10	15
Arg	Gln	Val	Thr	Phe	Ser	Lys	Arg	Arg	Asn	Gly	Leu	Ile	Glu	Lys	Ala	20	25	30	
Arg	Gln	Leu	Ser	Val	Leu	Cys	Asp	Ala	Ser	Val	Ala	Leu	Leu	Val	Val	35	40	45	
Ser	Ala	Ser	Gly	Lys	Leu	Tyr	Asn	Phe	Ser	Ala	Gly	Asp	Asp	Leu	Val	50	55	60	
Lys	Ile	Val	Asp	Arg	Tyr	Gly	Lys	Gln	His	Ala	Asp	Asp	Arg	Lys	Ala	65	70	75	80
Leu	Asp	Leu	Gln	Ser	Glu	Ala	Pro	Lys	Tyr	Gly	Ser	His	His	Glu	Leu	85	90	95	
Leu	Glu	Leu	Val	Glu	Ser	Lys	Leu	Val	Glu	Ser	Asn	Ser	Asp	Val	Ser	100	105	110	
Val	Asp	Ser	Leu	Val	Gln	Leu	Glu	Asn	His	Leu	Glu	Thr	Ala	Leu	Ser	115	120	125	
Val	Thr	Arg	Ala	Arg	Lys	Thr	Glu	Leu	Leu	Leu	Lys	Leu	Val	Asp	Ser	130	135	140	
Leu	Lys	Glu	Lys	Glu	Lys	Leu	Leu	Lys	Glu	Glu	Asn	Gln	Gly	Leu	Ala				

145 150 155 160

Ser Gln Met Glu Lys Asn Asn Leu Ala Gly Ala Glu Ala Asp Lys Met  
165 170 175

Glu Val Ser Pro Gly Gln Ile Ser Asp Ile Asn Cys Pro Val Thr Leu  
180 185 190

Pro Leu Leu Tyr  
195

<210> 17

<211> 196

<212> PRT

<213> Brassica napus

<400> 17

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Lys Asn Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Cys Lys Arg Arg Asn Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Glu Ala Ser Val Gly Leu Leu Val Val  
35 40 45

Ser Ala Ser Asp Lys Leu Tyr Ser Phe Ser Ser Gly Asp Arg Leu Glu  
50 55 60

Lys Ile Leu Asp Arg Tyr Gly Lys Lys His Ala Asp Asp Leu Asn Ala  
65 70 75 80

Leu Asp Leu Gln Ser Lys Ser Leu Asn Tyr Ser Ser His His Glu Leu  
85 90 95

Leu Glu Leu Val Glu Ser Lys Leu Val Glu Ser Ile Asp Asp Val Ser  
100 105 110

Val Asp Ser Leu Val Glu Leu Glu Asp His Leu Glu Thr Ala Leu Ser  
115 120 125

Val Thr Arg Ala Arg Lys Ala Glu Leu Met Leu Lys Leu Val Glu Ser  
130 135 140

Leu Lys Glu Lys Glu Asn Leu Leu Lys Glu Glu Asn Gln Val Leu Ala  
145 150 155 160

Ser Gln Ile Glu Lys Lys Asn Leu Glu Gly Ala Glu Ala Asp Asn Ile  
165 170 175

Glu Met Ser Ser Gly Gln Ile Ser Asp Ile Asn Leu Pro Val Thr Leu

180

185

190

Pro Leu Leu Asn  
195

<210> 18

<211> 197

<212> PRT

<213> Brassica napus

<400> 18

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Ser Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Asp Ala Ser Val Ala Leu Leu Val Val  
35 40 45

Ser Ser Ser Gly Lys Leu Tyr Ser Phe Ser Ala Gly Asp Asn Leu Val  
50 55 60

Arg Ile Leu Asp Arg Tyr Gly Lys Gln His Ala Asp Asp Leu Lys Ala  
65 70 75 80

Leu Asn Leu Gln Ser Lys Ala Leu Ser Tyr Gly Ser His Asn Glu Leu  
85 90 95

Leu Glu Leu Val Asp Ser Lys Leu Val Glu Ser Asn Val Gly Gly Val  
100 105 110

Ser Val Asp Thr Leu Val Gln Leu Glu Gly Val Leu Glu Asn Ala Leu  
115 120 125

Ser Leu Thr Arg Ala Arg Lys Thr Glu Leu Met Leu Lys Leu Val Asp  
130 135 140

Ser Leu Lys Glu Lys Glu Lys Leu Leu Lys Glu Glu Asn Gln Ala Leu  
145 150 155 160

Ala Gly Gln Lys Glu Lys Lys Asn Leu Ala Gly Ala Glu Ala Asp Asn  
165 170 175

Met Glu Met Ser Pro Gly Gln Ile Ser Asp Ile Asn Leu Pro Val Thr  
180 185 190

Leu Pro Leu Leu Asn  
195

<210> 19

<211> 197

<212> PRT

<213> Brassica napus

<400> 19

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Asn Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Asp Ala Ser Val Ala Leu Leu Val Val  
35 40 45

Ser Ala Ser Gly Lys Leu Tyr Ser Phe Ser Ser Gly Asp Asn Leu Val  
50 55 60

Lys Ile Leu Asp Arg Tyr Gly Lys Gln His Asp Asp Asp Leu Lys Ala  
65 70 75 80

Leu Asp Arg Gln Ser Lys Ala Leu Asp Cys Gly Ser His His Glu Leu  
85 90 95

Leu Glu Leu Val Glu Ser Lys Leu Glu Glu Ser Asn Val Asp Asn Val  
100 105 110

Ser Val Gly Ser Leu Val Gln Leu Glu Glu His Leu Glu Asn Ala Leu  
115 120 125

Ser Val Thr Arg Ala Arg Lys Thr Glu Leu Met Leu Lys Leu Val Glu  
130 135 140

Asn Leu Lys Glu Lys Glu Lys Leu Leu Glu Glu Glu Asn His Val Leu  
145 150 155 160

Ala Ser Gln Met Glu Lys Ser Asn Leu Val Arg Ala Glu Ala Asp Asn  
165 170 175

Met Asp Val Ser Pro Gly Gln Ile Ser Asp Ile Asn Leu Pro Val Thr  
180 185 190

Leu Pro Leu Leu Asn  
195

<210> 20

<211> 196

<212> PRT

<213> Brassica napus

<400> 20

Met	Gly	Arg	Lys	Lys	Leu	Glu	Ile	Lys	Arg	Ile	Glu	Asn	Lys	Ser	Ser	
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Arg	Gln	Val	Thr	Phe	Ser	Lys	Arg	Arg	Asn	Gly	Leu	Ile	Glu	Lys	Ala	
			20					25					30			
Arg	Gln	Leu	Ser	Val	Leu	Cys	Asp	Ala	Ser	Val	Ala	Leu	Leu	Val	Val	
		35					40					45				
Ser	Ala	Ser	Gly	Lys	Leu	Tyr	Asn	Phe	Ser	Ala	Gly	Asp	Asn	Leu	Val	
	50					55					60					
Lys	Ile	Leu	Asp	Arg	Tyr	Gly	Lys	Gln	His	Ala	Asp	Asp	Leu	Lys	Ala	
65					70				75						80	
Leu	Asp	Leu	Gln	Ser	Lys	Ala	Pro	Lys	Tyr	Gly	Ser	His	His	Glu	Leu	
				85					90					95		
Leu	Glu	Leu	Val	Glu	Ser	Lys	Leu	Val	Glu	Ser	Asn	Ser	Asp	Val	Ser	
			100					105					110			
Val	Asp	Ser	Leu	Val	Gln	Leu	Glu	Asp	His	Leu	Glu	Thr	Ala	Leu	Ser	
	115						120					125				
Val	Thr	Arg	Ala	Arg	Lys	Thr	Glu	Leu	Met	Leu	Lys	Leu	Val	Asp	Ser	
	130					135					140					
Leu	Lys	Glu	Lys	Glu	Lys	Leu	Leu	Lys	Glu	Glu	Asn	Gln	Gly	Leu	Ala	
145					150					155					160	
Ser	Gln	Met	Glu	Lys	Asn	Asn	Leu	Ala	Gly	Ala	Glu	Ala	Asp	Lys	Met	
				165					170					175		
Glu	Met	Ser	Pro	Gly	Gln	Ile	Ser	Asp	Ile	Asn	Arg	Pro	Val	Thr	Leu	
			180					185					190			
Arg	Leu	Leu	Tyr													
			195													

<210> 21

<211> 197

<212> PRT

<213> Brassica napus

<400> 21

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Ser Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Asp Ala Ser Val Ala Leu Leu Val Val  
35 40 45

Ser Ser Ser Gly Lys Leu Tyr Ser Phe Ser Ala Gly Asp Asn Leu Val  
50 55 60

Arg Ile Leu Asp Arg Tyr Gly Lys Gln His Ala Asp Asp Leu Lys Ala  
65 70 75 80

Leu Asn Leu Gln Ser Lys Ala Leu Ser Tyr Gly Ser His Asn Glu Leu  
85 90 95

Leu Glu Leu Val Asp Ser Lys Leu Val Glu Ser Asn Val Gly Gly Val  
100 105 110

Ser Val Asp Thr Leu Val Gln Leu Glu Gly Val Leu Glu Asn Ala Leu  
115 120 125

Ser Leu Thr Arg Ala Arg Lys Thr Glu Leu Met Leu Lys Leu Val Asp  
130 135 140

Ser Leu Lys Glu Lys Glu Lys Leu Leu Lys Glu Glu Asn Gln Ala Leu  
145 150 155 160

Ala Gly Gln Lys Glu Lys Lys Asn Leu Ala Gly Ala Glu Ala Asp Asn  
165 170 175

Met Glu Met Ser Pro Gly Gln Ile Ser Asp Ile Asn Leu Pro Val Thr  
180 185 190

Leu Pro Leu Leu Asn  
195

<210> 22

<211> 196

<212> PRT

<213> Brassica napus

<400> 22

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Asn Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Asp Ala Ser Val Ala Leu Leu Val Val  
35 40 45

Ser Ala Ser Gly Lys Leu Tyr Asn Phe Ser Ala Gly Asp Asn Leu Val  
50 55 60

Lys Ile Leu Asp Arg Tyr Gly Lys Gln His Ala Asp Asp Leu Lys Ala  
65 70 75 80

Leu Asp Leu Gln Ser Lys Ala Pro Lys Tyr Gly Ser His His Glu Leu  
85 90 95

Leu Glu Leu Val Glu Ser Lys Leu Val Glu Ser Asn Ser Asp Val Ser  
100 105 110

Val Asp Ser Leu Val Gln Leu Glu Asp His Leu Glu Thr Ala Leu Ser  
115 120 125

Val Thr Arg Ala Arg Lys Thr Glu Leu Met Leu Lys Leu Val Asp Ser  
130 135 140

Leu Lys Glu Lys Glu Lys Leu Leu Lys Glu Glu Asn Gln Gly Leu Ala  
145 150 155 160

Ser Gln Met Glu Lys Asn Asn Leu Ala Gly Ala Glu Ala Asp Lys Met  
165 170 175

Glu Met Ser Pro Gly Gln Ile Ser Asp Ile Asn Arg Pro Val Thr Leu  
180 185 190

Arg Leu Leu Tyr  
195

<210> 23

<211> 197

<212> PRT

<213> Brassica napus

<400> 23

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Asn Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Asp Ala Ser Val Ala Leu Leu Val Val  
35 40 45

Ser Ala Ser Gly Lys Leu Tyr Ser Phe Ser Ser Gly Asp Asn Leu Val  
50 55 60



Lys Ile Leu Asp Arg Tyr Gly Lys Gln His Asp Asp Asp Leu Lys Ala  
65 70 75 80

Leu Asp Arg Gln Ser Lys Ala Leu Asp Cys Gly Ser His His Glu Leu  
85 90 95

Leu Glu Leu Val Glu Ser Lys Leu Glu Glu Ser Asn Val Asp Asn Val  
100 105 110

Ser Val Gly Ser Leu Val Gln Leu Glu Glu His Leu Glu Asn Ala Leu  
115 120 125

Ser Val Thr Arg Ala Arg Lys Thr Glu Leu Met Leu Lys Leu Val Glu  
130 135 140

Asn Leu Lys Glu Lys Glu Lys Leu Leu Glu Glu Glu Asn His Val Leu  
145 150 155 160

Ala Ser Gln Met Glu Lys Ser Asn Leu Val Arg Ala Glu Ala Asp Asn  
165 170 175

Met Asp Val Ser Pro Gly Gln Ile Ser Asp Ile Asn Leu Pro Val Thr  
180 185 190

Leu Pro Leu Leu Asn  
195

<210> 24

<211> 196

<212> PRT

<213> Brassica napus

<400> 24

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Asn Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Asp Ala Ser Val Ala Leu Leu Val Val  
35 40 45

Ser Ala Ser Gly Lys Leu Tyr Asn Phe Ser Ala Gly Asp Asn Leu Val  
50 55 60

Lys Ile Leu Asp Arg Tyr Gly Lys Gln His Ala Asp Asp Leu Lys Ala  
65 70 75 80

Leu Asp Leu Gln Ser Lys Ala Pro Lys Tyr Gly Ser His His Glu Leu  
85 90 95

Leu Glu Leu Val Glu Ser Lys Leu Val Glu Ser Asn Ser Asp Val Ser  
100 105 110

Val Asp Ser Leu Val Gln Leu Glu Asp His Leu Glu Thr Ala Leu Ser  
115 120 125

Val Thr Arg Ala Arg Lys Thr Glu Leu Met Leu Lys Leu Val Asp Ser  
130 135 140

Leu Lys Glu Lys Glu Lys Leu Leu Lys Glu Glu Asn Gln Gly Leu Ala  
145 150 155 160

Ser Gln Met Glu Lys Asn Asn Leu Ala Gly Ala Glu Ala Asp Lys Met  
165 170 175

Glu Met Ser Pro Gly Gln Ile Ser Asp Ile Asn Arg Pro Val Thr Leu  
180 185 190

Arg Leu Leu Tyr  
195

<210> 25

<211> 197

<212> PRT

<213> Brassica napus

<400> 25

Met Gly Arg Lys Lys Leu Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Asn Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Val Leu Cys Asp Ala Ser Val Ala Leu Leu Val Val  
35 40 45

Ser Ala Ser Gly Lys Leu Tyr Ser Phe Ser Ser Gly Asp Asn Leu Val  
50 55 60

Lys Ile Leu Asp Arg Tyr Gly Lys Gln His Asp Asp Asp Leu Lys Ala  
65 70 75 80

Leu Asp Arg Gln Ser Lys Ala Leu Asp Cys Gly Ser His His Glu Leu  
85 90 95

Leu Glu Leu Val Glu Ser Lys Leu Glu Glu Ser Asn Val Asp Asn Val  
100 105 110

Ser Val Gly Ser Leu Val Gln Leu Glu Glu His Leu Glu Asn Ala Leu  
115 120 125

Ser Val Thr Arg Ala Arg Lys Thr Glu Leu Met Leu Lys Leu Val Glu  
130 135 140

Asn Leu Lys Glu Lys Glu Lys Leu Leu Glu Glu Glu Asn His Val Leu  
145 150 155 160

Ala Ser Gln Met Glu Lys Ser Asn Leu Val Arg Ala Glu Ala Asp Asn  
165 170 175

Met Asp Val Ser Pro Gly Gln Ile Ser Asp Ile Asn Leu Pro Val Thr  
180 185 190

Leu Pro Leu Leu Asn  
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<211> 196

<212> PRT

<213> Arabidopsis thaliana

<400> 26

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Arg Gln Val Thr Phe Ser Lys Arg Arg Asn Gly Leu Ile Asp Lys Ala  
20 25 30

Arg Gln Leu Ser Ile Leu Cys Glu Ser Ser Val Ala Val Val Val Val  
35 40 45

Ser Ala Ser Gly Lys Leu Tyr Asp Ser Ser Ser Gly Asp Asp Ile Ser  
50 55 60

Lys Ile Ile Asp Arg Tyr Glu Ile Gln His Ala Asp Glu Leu Arg Ala  
65 70 75 80

Leu Asp Leu Glu Glu Lys Ile Gln Asn Tyr Leu Pro His Lys Glu Leu  
85 90 95

Leu Glu Thr Val Gln Ser Lys Leu Glu Glu Pro Asn Val Asp Asn Val  
100 105 110

Ser Val Asp Ser Leu Ile Ser Leu Glu Glu Gln Leu Glu Thr Ala Leu  
115 120 125

Ser Val Ser Arg Ala Arg Lys Ala Glu Leu Met Met Glu Tyr Ile Glu  
130 135 140

Ser Leu Lys Glu Lys Glu Lys Leu Leu Arg Glu Glu Asn Gln Val Leu  
145 150 155 160

Ala Ser Gln Met Gly Lys Asn Thr Leu Leu Ala Thr Asp Asp Glu Arg  
165 170 175

Gly Met Phe Pro Gly Ser Ser Ser Gly Asn Lys Ile Pro Glu Thr Leu  
180 185 190

Pro Leu Leu Asn  
195

<210> 27

<211> 196

<212> PRT

<213> Arabidopsis thaliana

<400> 27

Met Gly Arg Lys Lys Val Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Asn Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Ile Leu Cys Glu Ser Ser Ile Ala Val Leu Val Val  
35 40 45

Ser Gly Ser Gly Lys Leu Tyr Lys Ser Ala Ser Gly Asp Asn Met Ser  
50 55 60

Lys Ile Ile Asp Arg Tyr Glu Ile His His Ala Asp Glu Leu Glu Ala  
65 70 75 80

Leu Asp Leu Ala Glu Lys Thr Arg Asn Tyr Leu Pro Leu Lys Glu Leu  
85 90 95

Leu Glu Ile Val Gln Ser Lys Leu Glu Glu Ser Asn Val Asp Asn Ala  
100 105 110

Ser Val Asp Thr Leu Ile Ser Leu Glu Glu Gln Leu Glu Thr Ala Leu  
115 120 125

Ser Val Thr Arg Ala Arg Lys Thr Glu Leu Met Met Gly Glu Val Lys  
130 135 140

Ser Leu Gln Lys Thr Glu Asn Leu Leu Arg Glu Glu Asn Gln Thr Leu  
145 150 155 160

Ala Ser Gln Val Gly Lys Lys Thr Phe Leu Val Ile Glu Gly Asp Arg  
165 170 175

Gly Met Ser Trp Glu Asn Gly Ser Gly Asn Lys Val Arg Glu Thr Leu  
180 185 190

Pro Leu Leu Lys  
195

<210> 28

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<212> PRT

<213> Arabidopsis thaliana

<400> 28

Met Gly Arg Arg Lys Val Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Lys Gly Leu Ile Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Ile Leu Cys Glu Ser Ser Ile Ala Val Val Ala Val  
35 40 45

Ser Gly Ser Gly Lys Leu Tyr Asp Ser Ala Ser Gly Asp Asn Met Ser  
50 55 60

Lys Ile Ile Asp Arg Tyr Glu Ile His His Ala Asp Glu Leu Lys Ala  
65 70 75 80

Leu Asp Leu Ala Glu Lys Ile Arg Asn Tyr Leu Pro His Lys Glu Leu  
85 90 95

Leu Glu Ile Val Gln Ser Lys Leu Glu Glu Ser Asn Val Asp Asn Val  
100 105 110

Ser Val Asp Ser Leu Ile Ser Met Glu Glu Gln Leu Glu Thr Ala Leu  
115 120 125

Ser Val Ile Arg Ala Lys Lys Thr Glu Leu Met Met Glu Asp Met Lys  
130 135 140

Ser Leu Gln Glu Arg Glu Lys Leu Leu Ile Glu Glu Asn Gln Ile Leu  
145 150 155 160

Ala Ser Gln Val Gly Lys Lys Thr Phe Leu Val Ile Glu Gly Asp Arg  
165 170 175

Gly Met Ser Arg Glu Asn Gly Ser Gly Asn Lys Val Pro Glu Thr Leu  
180 185 190

Ser Leu Leu Lys  
195

<210> 29

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<212> PRT

<213> Arabidopsis thaliana

<400> 29

Met Gly Arg Arg Lys Val Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Cys Lys Arg Arg Asn Gly Leu Met Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Ile Leu Cys Glu Ser Ser Val Ala Leu Ile Ile Ile  
35 40 45

Ser Ala Thr Gly Arg Leu Tyr Ser Phe Ser Ser Gly Asp Ser Met Ala  
50 55 60

Lys Ile Leu Ser Arg Tyr Glu Leu Glu Gln Ala Asp Asp Leu Lys Thr  
65 70 75 80

Leu Asp Leu Glu Glu Lys Thr Leu Asn Tyr Leu Ser His Lys Glu Leu  
85 90 95

Leu Glu Thr Ile Gln Cys Lys Ile Glu Glu Ala Lys Ser Asp Asn Val  
100 105 110

Ser Ile Asp Cys Leu Lys Ser Leu Glu Glu Gln Leu Lys Thr Ala Leu  
115 120 125

Ser Val Thr Arg Ala Arg Lys Thr Glu Leu Met Met Glu Leu Val Lys  
130 135 140

Thr His Gln Glu Lys Glu Lys Leu Leu Arg Glu Glu Asn Gln Ser Leu  
145 150 155 160

Thr Asn Gln Leu Ile Lys Met Gly Lys Met Lys Lys Ser Val Glu Ala  
165 170 175

Glu Asp Ala Arg Ala Met Ser Pro Glu Ser Ser Ser Asp Asn Lys Pro  
180 185 190

Pro Glu Thr Leu Leu Leu Lys  
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<210> 30

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<213> Arabidopsis thaliana

<400> 30

Met Gly Arg Arg Arg Val Glu Ile Lys Arg Ile Glu Asn Lys Ser Ser  
1 5 10 15

Arg Gln Val Thr Phe Cys Lys Arg Arg Asn Gly Leu Met Glu Lys Ala  
20 25 30

Arg Gln Leu Ser Ile Leu Cys Gly Ser Ser Val Ala Leu Phe Ile Val  
35 40 45

Ser Ser Thr Gly Lys Leu Tyr Asn Ser Ser Ser Gly Asp Ser Met Ala  
50 55 60

Lys Ile Ile Ser Arg Phe Lys Ile Gln Gln Ala Asp Asp Pro Glu Thr  
65 70 75 80

Leu Asp Leu Glu Asp Lys Thr Gln Asp Tyr Leu Ser His Lys Glu Leu  
85 90 95

Leu Glu Ile Val Gln Arg Lys Ile Glu Glu Ala Lys Gly Asp Asn Val  
100 105 110

Ser Ile Glu Ser Leu Ile Ser Met Glu Glu Gln Leu Lys Ser Ala Leu  
115 120 125

Ser Val Ile Arg Ala Arg Lys Thr Glu Leu Leu Met Glu Leu Val Lys  
130 135 140

Asn Leu Gln Asp Lys Glu Lys Leu Leu Lys Glu Lys Asn Lys Val Leu  
145 150 155 160

Ala Ser Glu Val Gly Lys Leu Lys Lys Ile Leu Glu Thr Gly Asp Glu  
165 170 175

Arg Ala Val Met Ser Pro Glu Asn Ser Ser Gly His Ser Pro Pro Glu  
180 185 190

Thr Leu Pro Leu Leu Lys  
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30

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20

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25

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<213> Artificial

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24



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<400> 36  
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16

<210> 37

<211> 25

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25

<210> 38

<211> 25

<212> DNA

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<400> 38

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34

<210> 40

<211> 35

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<211> 34

<212> DNA

<213> Artificial

<220>

<223> synthesised DNA primer

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attgaattcg ggcataaccc ttatcggaga ttg

34

<210> 42

<211> 35

<212> DNA

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<220>

<223> synthesised DNA primer

<400> 42

ctagtggtag cggtgatgat ggtggctaata tgagc

35